

**WHAT IS CLAIMED IS:**

1. A method comprising:
  - a) reading multiple chemical arrays each having a plurality of features, to obtain array signal data;
  - b) saving the array signal data for the multiple arrays in a memory;
  - c) retrieving saved signal data for chemical arrays from the memory and extracting feature characteristics therefrom, wherein the saved signal data for a chemical array is extracted while another chemical array is being read.
2. A method according to claim 1 wherein the arrays are polynucleotide or peptide arrays.
3. A method according to claim 1 wherein the chemical array saved signal data is automatically retrieved from the memory at each of one or more processors as the processor becomes available to perform feature characteristic extraction on the retrieved signal data for the chemical array, and extracts feature characteristics from the retrieved signal data.
4. A method according to claim 3 wherein the retrieval and extraction of saved signal data for a chemical array are automatically repeated by each of the one or more processors until all saved signal data for multiple chemical arrays in the memory has had feature characteristics extracted therefrom.
5. A method according to claim 1 wherein each of the read arrays is associated with a corresponding identifier, the method additionally comprising reading the array identifiers and saving each read array identifier in the memory in association with the saved array signal data for the corresponding array.
6. A method according to claim 5 additionally comprising for each array:
  - retrieving the identifier from the memory in association with the retrieved array signal data,
  - and saving extracted feature characteristics for the array in a memory in association with the retrieved identifier.

7. A method according to claim 6 additionally comprising retrieving extracted feature characteristics for each of multiple arrays based on the corresponding identifier for that array.
8. A method according to claim 5 wherein the associated array identifiers are on the array substrate, a housing carrying the array, or in a same package carrying the array.
9. A method according to claim 7 additionally comprising  
at a sample processing station, exposing an array to a sample and reading the associated array identifier;  
wherein the array reading is performed at an array reading station and extracted feature characteristics for each array are retrieved based on the associated array identifier as read at the sample processing station.
10. A method according to claim 1 wherein the arrays are read at multiple reading stations, the method additionally comprising for each of multiple arrays, saving a reading station identification or characteristic in the memory in association with the saved signal data for that array.
11. A method according to claim 1 additionally comprising saving a processor identification or feature extraction characteristic in a memory in association with the extracted feature characteristics for each of the chemical arrays.
12. A method comprising:
  - a) reading at each of multiple reading stations, multiple chemical arrays each having a plurality of features, to obtain array signal data;
  - b) saving the array signal data from the multiple reading stations in a common memory;
  - c) automatically retrieving saved signal data for chemical arrays from the common memory at each of one or more processors communicating with the common memory, as each processor becomes available to perform feature characteristic extraction on

the retrieved signal data for the chemical array, and extracting feature characteristics from the retrieved chemical array signal data at each of the processors.

13. A method according to claim 12 wherein there are multiple processing stations communicating with the common memory, each of which retrieves chemical array saved signal data from the common memory.

14. A method according to claim 12 wherein each of the read arrays is associated with a corresponding identifier, the method additionally comprising reading the array identifiers at each of the multiple reading stations and saving each read array identifier in the common memory in association with the saved array signal data for the corresponding array.

15. A method according to claim 14 additionally comprising for each of multiple arrays: retrieving the identifier from the common memory in association with the retrieved array signal data, and saving extracted feature characteristics for the array in a memory in association with the retrieved identifier.

16. A method comprising:

- a) reading at each of one or more reading stations, multiple chemical arrays each having a plurality of features, to obtain array signal data;
- b) saving the array signal data from the one or more reading stations in a common memory;
- c) retrieving saved signal data for chemical arrays from the common memory at each of multiple processing stations communicating with the common memory, and extracting feature characteristics from the retrieved chemical array signal data at each of the processing stations.

17. A method according to claim 14 wherein the associated array identifiers are on the array substrate, a housing carrying the array, or in a same package carrying the array.

18. A method comprising:

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- a) receiving at a hub station from multiple reading stations, array signal data from the reading of multiple chemical arrays each having a plurality of features;
- b) saving the received array signal data from the multiple reading stations in a memory;
- c) retrieving saved array signal data for arrays from the memory and communicating the retrieved array signal data to multiple processing stations.

19. A method according to claim 18 additionally comprising receiving an array identifier with the array signal data for each corresponding array and saving both in association with one another.

20. A method according to claim 19 wherein the array signal data for each array is retrieved based on a received communication of the identifier for the corresponding array.

21. A method according to claim 18 additionally comprising, for each of multiple reading stations, receiving a reading station identification or characteristic at the hub station in association with an array signal data, and saving the received reading station identification or characteristic in a memory in association with the saved signal data for that array.

22. An apparatus comprising:

- a) a memory;
- b) an array reader having a first processor which communicates with the memory, wherein the first processor causes the reader to read multiple chemical arrays each having a plurality of features, to obtain array signal data, and saves the read array signal data in the memory; and
- c) a second processor communicating with the memory and which retrieves saved signal data for arrays from the memory and extracts feature characteristics therefrom, wherein the saved signal data for an array is extracted while another array is being read by an array reader.

23. An apparatus according to claim 22 wherein the second processor automatically retrieves saved signal data for a chemical array from the memory as the

processor becomes available to perform feature characteristic extraction on the retrieved signal data for the chemical array, and extracts feature characteristics from the retrieved signal data.

24. An apparatus according to claim 22 wherein:  
the array reader includes an identifier reader which for each array reads a corresponding array identifier associated with that array; and  
the first processor saves each read array identifier in the memory in association with the saved array signal data for the corresponding array.

25. An apparatus according to claim 24 wherein for each array the second processor retrieves the identifier from the memory in association with the retrieved array signal data, and saves extracted feature characteristics for the array in a memory in association with the retrieved identifier.

26. An apparatus according to claim 25 additionally comprising a user station including a third processor which communicates with the memory in which extracted feature characteristics and associated identifiers are saved and retrieves therefrom extracted feature characteristics for each of multiple arrays based on the corresponding identifier for that array.

27. An apparatus according to claim 24 wherein the identifier reader reads associated array identifiers from an array substrate or a housing carrying the array.

28. An apparatus according to claim 22 wherein:  
the apparatus has multiple array readers each having a corresponding first processor which communicates with the same common memory, wherein each first processor causes the corresponding reader to read multiple chemical arrays each having a plurality of features, to obtain array signal data, and saves the read array signal data in the common memory; and

each first processor of each array reader saves a reading station identification or characteristic in the common memory in association with the saved signal data for each array read at corresponding array reader.

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29. An apparatus comprising:
  - a) a common memory;
  - b) multiple array reading stations, each having a first processor which communicates with the common memory, wherein the first processor causes the reader to read multiple chemical arrays each having a plurality of features, to obtain array signal data, and saves the read array signal data in the common memory; and
  - c) multiple processing stations, each having a second processor which communicates with the memory and which retrieves saved signal data for arrays from the memory and extracts feature characteristics therefrom.
30. An apparatus according to claim 29, wherein each array reading station includes an identifier reader which for each array reads a corresponding array identifier associated with that array; and the first processor of each array reader saves each read array identifier in the common memory in association with the saved array signal data for the corresponding array.
31. An apparatus according to claim 30 wherein for each array the second processor retrieves the identifier from the memory in association with the retrieved array signal data, and saves extracted feature characteristics for the array in a memory in association with the retrieved identifier.
32. An apparatus according to claim 30 wherein each identifier reader reads array identifiers carried on an array substrate or a housing carrying the array.
33. An apparatus comprising a hub which:
  - a) receives from multiple reading stations, array signal data from the reading of multiple chemical arrays each having a plurality of features, and saves the received array signal data from the multiple reading stations in a memory; and
  - c) retrieves saved array signal data for arrays from the memory and communicates the retrieved array signal data to multiple processors upon receipt of an indication from each processor that it is ready to process further array signal data.

34. An apparatus according to claim 33 wherein the array signal data for each array is retrieved by the hub based on a received communication of the identifier for the corresponding array.
35. An apparatus according to claim 33 wherein, for each of multiple reading stations, the hub receives a reading station identification or characteristic in association with an array signal data, and saves the received reading station identification or characteristic in a memory in association with the saved signal data for that array.
36. A method comprising forwarding data representing a result of a reading and extracting obtained by the method of claim 1.
37. A method according to claim 36 wherein the data is communicated to a remote location.
38. A method comprising receiving data representing a result of a reading and extracting obtained by the method of claim 1.

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